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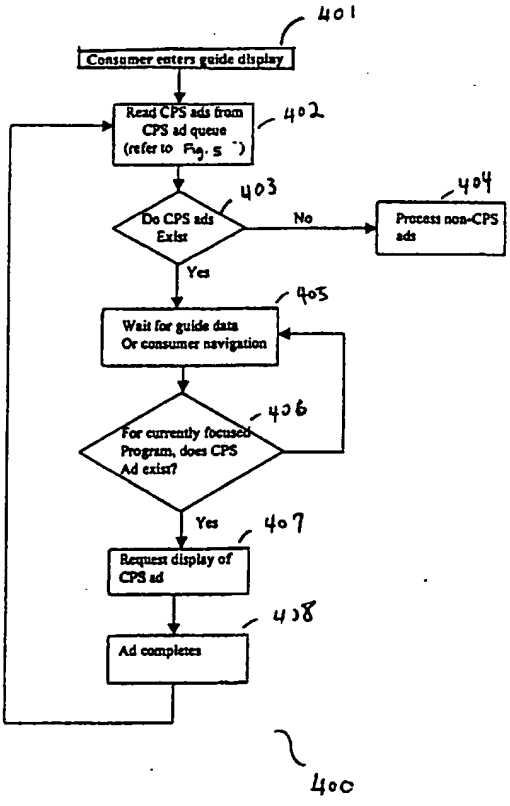
(54) Title: ADVERTISEMENT SELECTION BASED ON USER ACTION IN AN ELECTRONIC PROGRAM GUIDE

(57) Abstract

A method of displaying a targeted advertisement on an electronic program guide based on consumer navigation is presented. A plurality of advertisements are received in a television apparatus through an auxiliary source. The received advertisements are stored along with their respective descriptor. Navigation of a user of the electronic program guide is monitored. Then a selected advertisement from the stored advertisements is displayed in response to the navigation monitoring.



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ADVERTISEMENT SELECTION BASED ON USER ACTION IN AN ELECTRONIC PROGRAM GUIDE

FIELD OF INVENTION

The present invention generally relates to the field of electronic program guide processing and display, and more particularly, to a system and method of automatically displaying a targeted advertisement while a user is navigating within an electronic program guide.

BACKGROUND OF INVENITON

Electronic devices such as televisions or VCRs require a control system that includes a user interface system. Typically, a user interface system provides information to a user and simplifies use of the device. One example of a user interface is an electronic menuing system in a television system. The menuing system allows a user to easily interact with and control a television system that is becoming more complex.

An example of a menuing system which allows user to navigate in today's television environment where there are many channels is an Electronic Program Guide (EPG). EPGs are very useful for providing program information while a consumer is watching TV. These EPGs are generally supported by advertising displayed along with the program information. These advertisements are sent as part of the EPG data and are displayed in a program guide screen based on time descriptors in the advertisement. These time descriptors are used by the receiver to control when the advertisement is made visible in the guide display.

SUMMARY OF THE INVENTION

The present inventors recognized that the above method provides for poor control of advertisement exposure. It is the responsibility of the distribution system to define, using time descriptors, when an ad is to be displayed, without knowing any habit of the viewers. Furthermore, the time descriptors will not allow the presentation of the ads to be synchronized with the consumer's navigation within a program guide display.

The present inventors recognize that, therefore, it is desirable to be able to selectively show a targeted advertisement when a user is using an EPG in order to increase ad effectiveness. Therefore, a method of displaying a targeted

advertisement on an electronic program guide based on consumer navigation is presented, comprising the steps of:

receiving a plurality of advertisements through an auxiliary source in a television apparatus.

storing the received advertisements along with their respective descriptor;

monitoring navigation of a user of the electronic program guide;

displaying a selected advertisement from said stored advertisements in response to the navigation monitoring.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

Figure 1 shows an exemplary architecture of a television system of the present invention.

Figure 2 shows an exemplary manner in which auxiliary information may be displayed with the program content associated with a television signal.

Figure 3 shows an exemplary manner in which auxiliary information may be displayed with an electronic program guide.

Figure 4 shows an exemplary flow diagram according to the present invention.

Figure 5 is also an exemplary flow diagram according to the present invention.

DETAILED DESCRIPTION

An exemplary embodiment of the present invention is shown in Fig. 1. The system comprises a video processing apparatus 101 capable of communicating television program signals and electronic program guide (EPG) signals each enhanced with auxiliary information, such as advertisements, by a television communication channel 103 such as terrestrial broadcast, cable distribution, satellite broadcast or the like. An example of such a video processing apparatus may be a satellite receiver set-top box, similar to that designed and manufactured by Thomson Consumer Electronics, of Indianapolis, Indiana, U.S.A., for receiving DirecTV™ satellite service provided by Hughes Electronics, and is described in detail, for example, in a PCT application bearing International Publication Number WO 98/56173.

The system shown in Fig. 1 receives the enhanced television program and EPG signals via a video server 102, which combines signal sources representing both television program signal source 104 and electronic program guide signal source 105. The television receiver 101 displays the auxiliary information on a monitor 106 connected to the television receiver 101 in association with the displayed video portion corresponding to a selected television program signal and the displayed EPG derived from the EPG signal. Figure 2 shows the manner in which auxiliary information may be displayed with the program content associated with a television signal; and Figure 3 shows the manner in which auxiliary information may be displayed with an electronic program guide.

When the auxiliary information such as advertisement is selected by a user via a control system of a television receiver such as a remote control system119, the system communicates information concerning the selection from the television receiver via a back channel such as a modem 106, to a "store and forward" server 110.

The store and forward server 110 collects and categorizes the selection information 114 from receiver 101 into packages related to the origin of the auxiliary information, and at a later time communicates the selected information back to a designated party, such as the originator of the auxiliary information. The time delay allows for the selection of the transmission times (e.g., at night) to minimize costs. The server 110 also determines the signal source associated with the selected auxiliary information (i.e., the source of the television signal or the EPG signal) and the number of times the auxiliary information has been selected. The number is used by the operator of the server to determine a fee to be paid, e.g., by the originator of the auxiliary information. This information may also be used to selectively determine the type of auxiliary information to be transmitted to or displayed for the user.

The selection information 114 communicated to the store and forward server from a television receiver may include identification data 113 for identifying the television receiver 101 from which the selection information 114 was sent. Such a provision allows the originator of the auxiliary information to identify and communicate with the consumers making the selection for the

purposes of providing additional information and making sales. In a related feature, the provision of identifying the television receiver through the back channel may allow an audience survey company to monitor the viewing habits of the consumers.

Various signal formats for embedding the auxiliary information in the television program signals and EPG signals are available. For example, a protocol known as ATVEF proposed by the Advance Television Enhancement Forum, an alliance of television communication and computer companies is advantageous. The protocol is based on the HTML (Hypertext Markup Language) utilized in the Internet. The ATVEF protocol may be used with both analog and digital television systems. Other protocols may be used. In an analog television system, the auxiliary information may be included in the vertical blanking interval (VBI) of the television program signal, together with the EPG signal. In a digital television system the auxiliary information may be "packetized" and inserted into the digital data stream including the television program data and EPG data.

Another tier or feature level of the television system may also include provisions for communicating E-mail information, e.g., via the store and forward sever, also enhanced with auxiliary information, such as advertisements, to television receivers. In that case, the store and forward server also collects and categorizes the selection information associated with e-mail and quantifies the selection information for revenue tracking purposes. In this tier, providing auxiliary information, such as advertisements, subsidizes the cost of the E-mail service and may, in fact, allow for "free-mail". However, since the server delays the transmission of data so as to be economic, still other tiers of the system may provide for accelerated E-mail communication service and possibly also connection to the Internet upon the payment of fees by the consumer. Such an e-mail server 111 and Internet server 112 are shown in Fig. 1.

The auxiliary information may also contain software for operating the television receiver or for providing an additional functionality to it, such as video games or personal computer functions including, e.g., word processing and spread sheet programs. To the extent that the television receiver itself has insufficient data processing capability itself, e.g., insufficient memory, such data

processing may be shared from a personal computer linked to the television receiver via a bus.

Another aspect of such an apparatus provides for integrating a web browser and either an Ethernet or HomePNA interface for networking. Connecting the apparatus to a personal computer (PC) enhances the functionality by being able to download software applications, such as a word processor or spreadsheet, from the PC. Further, the apparatus could utilize the PC for data storage or for printing. A network connection would enable storing a URL directly and/or automatically on the PC.

In Figure 1, a television program signal source 104 combines a television program signal 104a with an auxiliary information signal 104b, such as an advertisement, to produce an enhanced television program signal 115 that is supplied to the video server 102. Also supplied to the server is an enhanced electronic program guide (EPG) signal from an electronic program guide signal source. The enhanced EPG signal represents a combination of an EPG signal 116 representative of program guide information 105a and a second auxiliary information signal 105a, such as an advertisement. Thus, auxiliary information such as advertisements may be included with either or both of the video and EPG signals.

The video server 116 communicates a signal comprising the enhanced television signal and/or the enhanced EPG signal to a video signal processing device, such as TV receiver 101, via a television communication channel. As described above, a back channel from the video signal processing device, e.g., TV, is provided via means of a device such as a modem 106. The back channel couples the video signal processing device 101 to a store and forward server 110 where data is stored and processed before being forwarded to other destinations. For example, packets of data may be forwarded to advertisers or others communicating auxiliary information to a viewer. The store and forward server 110 also provides a link between the email server 111 and internet server 112 that provide respective email and internet connection services to users in accordance with the tier of service to which the user subscribes. An auxiliary information signal may also be coupled to the system via the email server 111.

In FIG. 2, auxiliary information, such as advertisements for the television program "Friends" 205 and for Carnival Cruise Lines 206, is shown displayed with EPG information 210 and with video program information 215 such as the television program "ER". The video program window 215 could be larger or smaller as could the display regions associated with the auxiliary information 205 or 206 and the EPG information 215. Also, three types of display regions are shown simultaneously in FIG. 2 (i.e., video or television program, auxiliary information, and EPG regions), a display might include only one or only two of the three regions. For example, FIG. 3 shows auxiliary information, such as advertisements 305 and 306 displayed with EPG information 310 and without video or television program information.

As discussed above, program guide information are being provided to set-top boxes and televisions in satellite, cable, terrestrial, etc. systems to include, for example, advertisements. These advertisements may either be hard-coded into the receiving unit's software, or they are downloaded via the auxiliary signal distribution system.

As mentioned previously, current systems display advertisements in a program guide screen based on time descriptors in the advertisement. These time descriptors are used by the receiver to control when the advertisement is made visible in the guide display. This method provides for poor control of advertisement exposure. It is the responsibility of the distribution system to define, using time descriptors, when an ad is to be displayed, without knowing any habit of the viewers. Furthermore, the time descriptors will not allow the presentation of the ads to be synchronized with the consumer's navigation within a program guide display.

In accordance with the present invention, the present inventors recognize that a consumer navigating through a program guide display, his or her focus changes from one program to another. Therefore, the guide advertisements should be adjusts accordingly, to achieve the maximum results. If the consumer is attracted by the advertisement, he or she is only one or two button presses from viewing the advertised program.

The present method of channel and time specific advertisement placement can be done using information being displayed in the program guide screen as well as new descriptors in the advertisement's data. The channel numbers of the channels being displayed in the guide along with new descriptors in the advertisement's data such as a Channel Id and/or Program Id, can be used to present a channel/program-specific advertisement. This allows for the following. When the consumer scrolls through a program guide display and highlights or is about to highlight a program on a channel, a catchy advertisement specific to that program can be started which will lure the consumer to tune to that program.

The placement of a particular advertisement in the program guide according to the present invention, may be controlled as shown, for example, in the flow chart of Fig. 4 and described in detail below. As shown in Fig. 4, when the consumer displays the program guide as shown in step 401, a software process called, for example, Advertisement Manager 400, queries the Channel and Program Specific (CPS) advertisement queue, as in step 402. This queue is maintained by a separate process as shown in Fig. 5.

The Channel and Program Specific advertisement queue process shown in Fig. 5 will obtain advertisement information from advertisement data sent as the auxiliary information signal of the enhanced television program signal 104 or electronic program guide signal source 105, as shown in step 501. In step 502, a determination is made to see whether a particular advertisement received is subject to be displayed based on consumer navigation. This is done by looking at, for example, a control bit in the advertisement data. If the determination is affirmative, as in step 504, this particular advertisement will be placed in the CPS queue to be used by Advertisement Manager 400 as described below.

Continue on step 403 of Fig. 4, the Advertisement Manager 400 check to see if CPS advertisements exist from the CPS queue. The Advertisement Manager 400 then wait for some type of consumer navigation, in step 405. This can be done, for example, by monitor the highlight position of a cruiser or user key entries on the remote. It then checks the channel and program information of each ad and compares it to the channels and programs being highlighted in the

guide screen, in step 406. This is done, for example, when the guide display is scrolled or paged with respect to time or channels or when new guide data is presented on the screen. If the channel descriptor of an ad matches one of the channels being displayed or very shortly about to be displayed, determined by monitoring the direction of scroll within the guide, the Advertisement Manager 400 compares the program descriptor of the ad with the program being displayed in the guide. If the channel and program information correspond, the ad is displayed, as in steps 406 and 407. Otherwise, the Advertisement Manager 400 continues to monitor the CPS ad queue and/or display non-CPS ads, as in steps 402, 403 and 404.

It will be readily apparent to those skilled in the art that the teachings of the present invention described above may be applied to a television, VCR, settop boxes, a video storage and playback unit such as a Tivo, etc., without departing from the true scope of the claims appended hereto.

CLAIMS

1. A method of displaying a targeted advertisement on an electronic program guide based on consumer navigation, comprising the steps of:

receiving a plurality of advertisements through an auxiliary source in a television apparatus.

storing the received advertisements along with their respective descriptor;

monitoring navigation of a user of the electronic program guide; and

displaying a selected advertisement from said stored advertisements in response to the navigation monitoring.

2. The method of claim1 wherein the descriptor comprises a channel descriptor.

3. The method of claim 2 wherein the advertisement is selected for displayed in the displaying step when the channel descriptor of the selected advertisement matches the channel highlighted by the user.

4. The method of claim 2 wherein the descriptor further comprises a time descriptor.

5. The method of claim 4 wherein the advertisement is selected for displayed in the displaying step when the channel descriptor of the selected advertisement matches the channel highlighted by the user and the time descriptor of the selected advertisement matches a current time.

6. The method of claim 1 wherein the auxiliary source in the receiving step is through a television communication channel.

7. A method of displaying a targeted advertisement on an electronic program guide based on consumer navigation, comprising the steps of:

storing a plurality of preprogrammed advertisements along with their respective descriptor in a television apparatus;

monitoring navigation of a user of the electronic program guide; and

displaying a selected advertisement from the stored advertisements in response to the navigation monitoring.

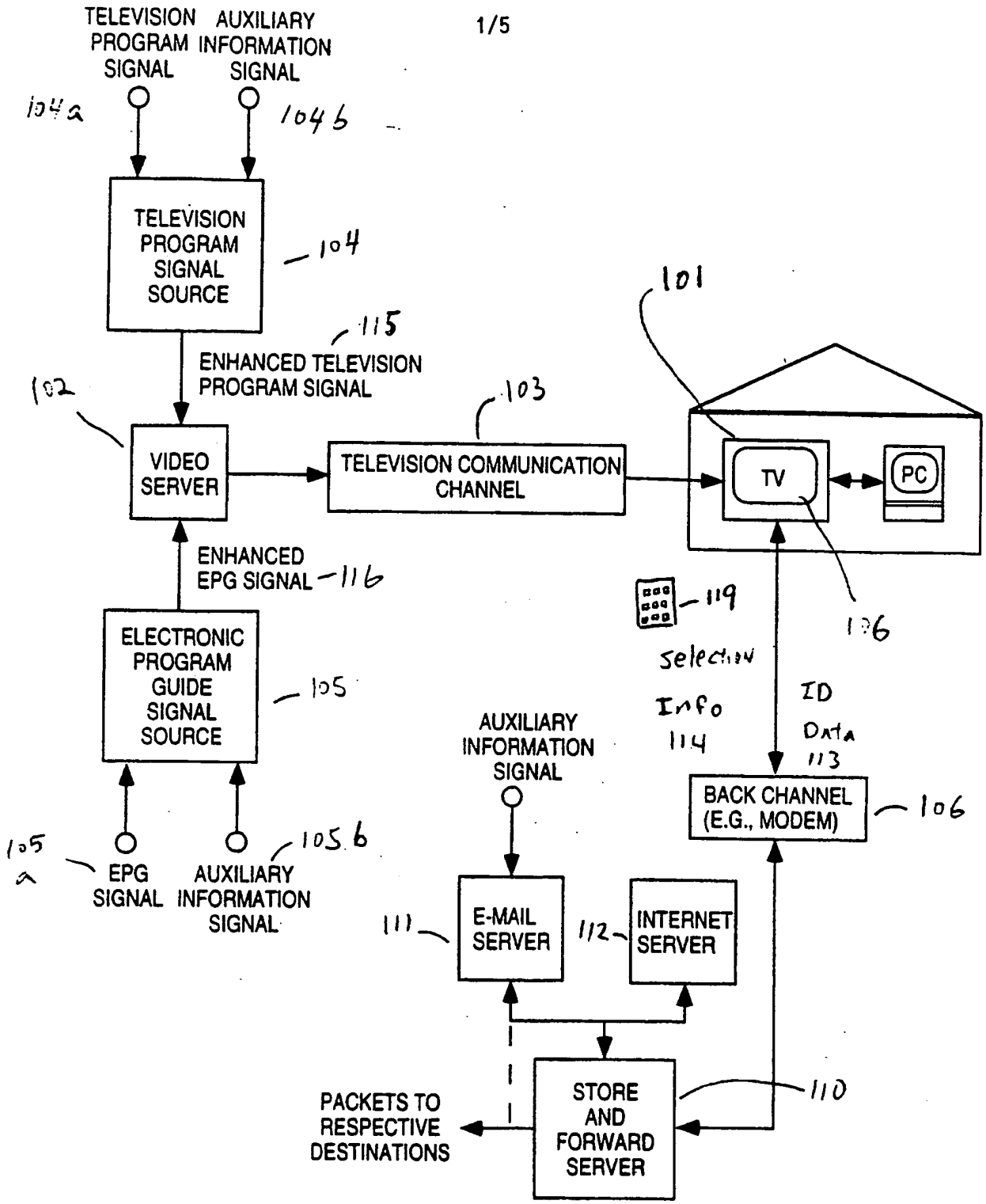
TELEVISION PROGRAM SIGNAL
AUXILIARY INFORMATION SIGNAL
104a
104b
TELEVISION PROGRAM SIGNAL SOURCE
104
115
ENHANCED TELEVISION PROGRAM SIGNAL
101
102
VIDEO SERVER
103
TELEVISION COMMUNICATION CHANNEL
TV
PC
ENHANCED EPG SIGNAL
116
119
selection Info 114
ID Data 113
106
ELECTRONIC PROGRAM GUIDE SIGNAL SOURCE
105
AUXILIARY INFORMATION SIGNAL
BACK CHANNEL (E.G., MODEM)
106
105a
EPG SIGNAL
AUXILIARY INFORMATION SIGNAL
105b
111
E-MAIL SERVER
112
INTERNET SERVER
PACKETS TO RESPECTIVE DESTINATIONS
STORE AND FORWARD SERVER
110

FIGURE 1

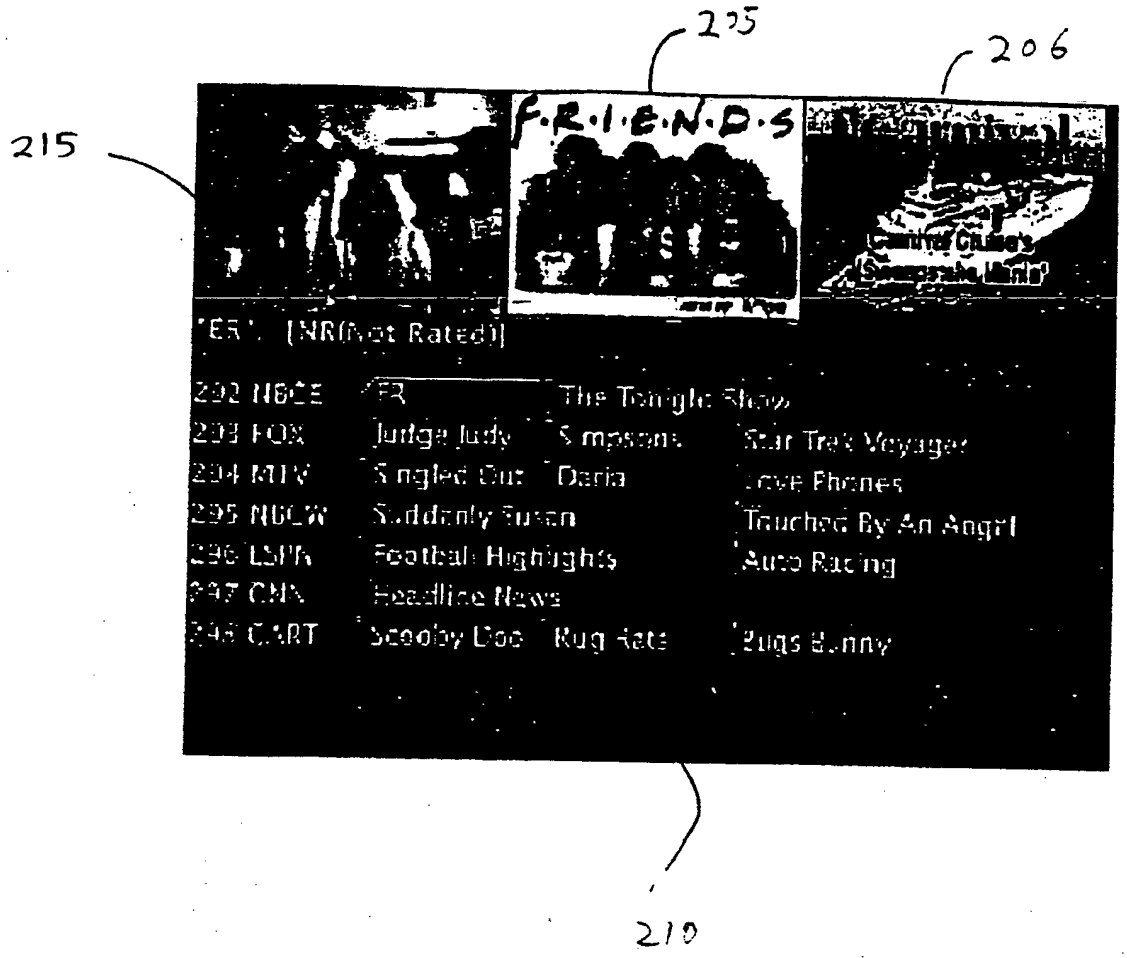
205
206
215
F·R·I·E·N·D·S
'ER' [NR(Not Rated)]
202 NBCE ER The Tonight Show
203 FOX Judge Judy Simpsons Star Trek Voyager
204 MTV Singled Out Daria Love Phones
205 NBCW Suddenly Susan Touched By An Angel
206 ESPN Football Highlights Auto Racing
207 CNN Headline News
208 CART Scooby Doo Rug Rats Bugs Bunny
210

FIG. 2

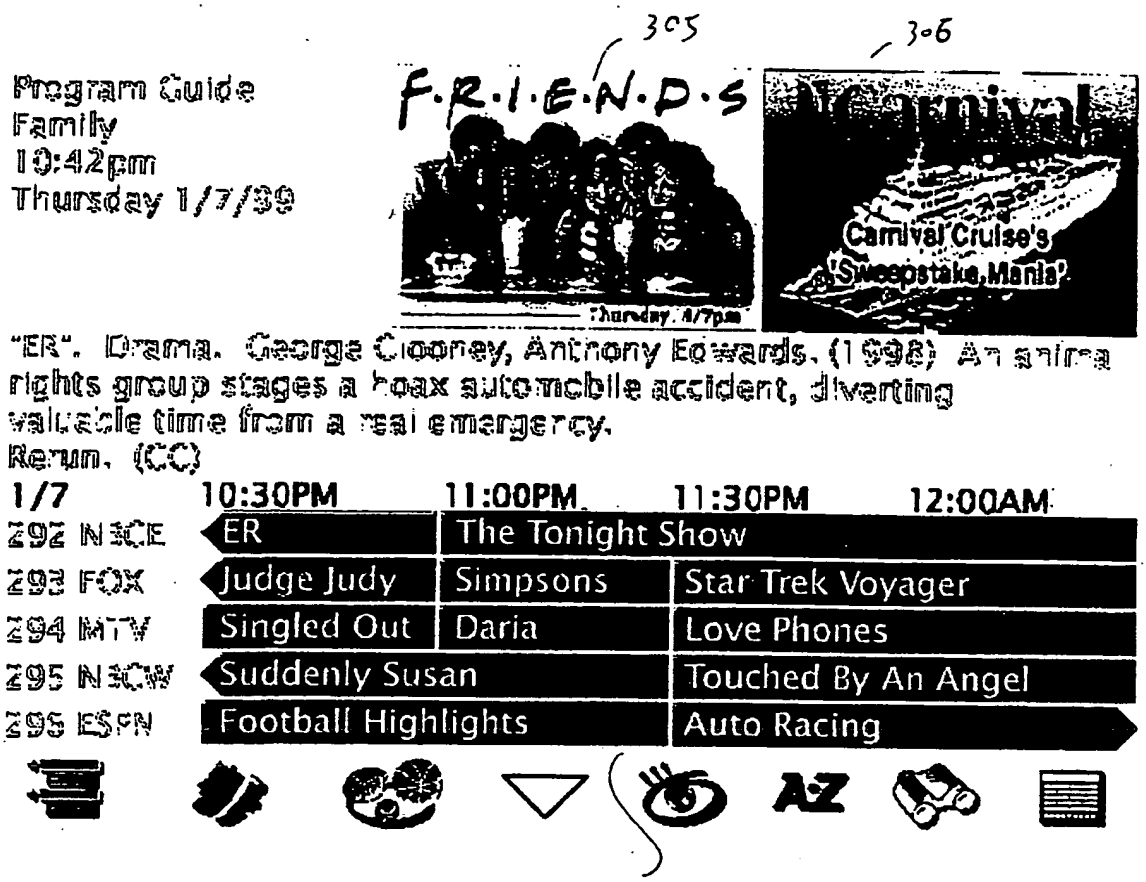
305
306
Program Guide
Family
10:42pm
Thursday 1/7/99
F.R.I.E.N.D.S
Carnival Cruise's
'Sweepstake Mania'
"ER". Drama. George Clooney, Anthony Edwards. (1998) An animal rights group stages a hoax automobile accident, diverting valuable time from a real emergency.
Rerun. (CC)
1/7
10:30PM
11:00PM
11:30PM
12:00AM
292 NBCE
ER
The Tonight Show
293 FOX
Judge Judy
Simpsons
Star Trek Voyager
294 MTV
Singled Out
Daria
Love Phones
295 NBCW
Suddenly Susan
Touched By An Angel
296 ESPN
Football Highlights
Auto Racing
AZ
310

FIG. 3

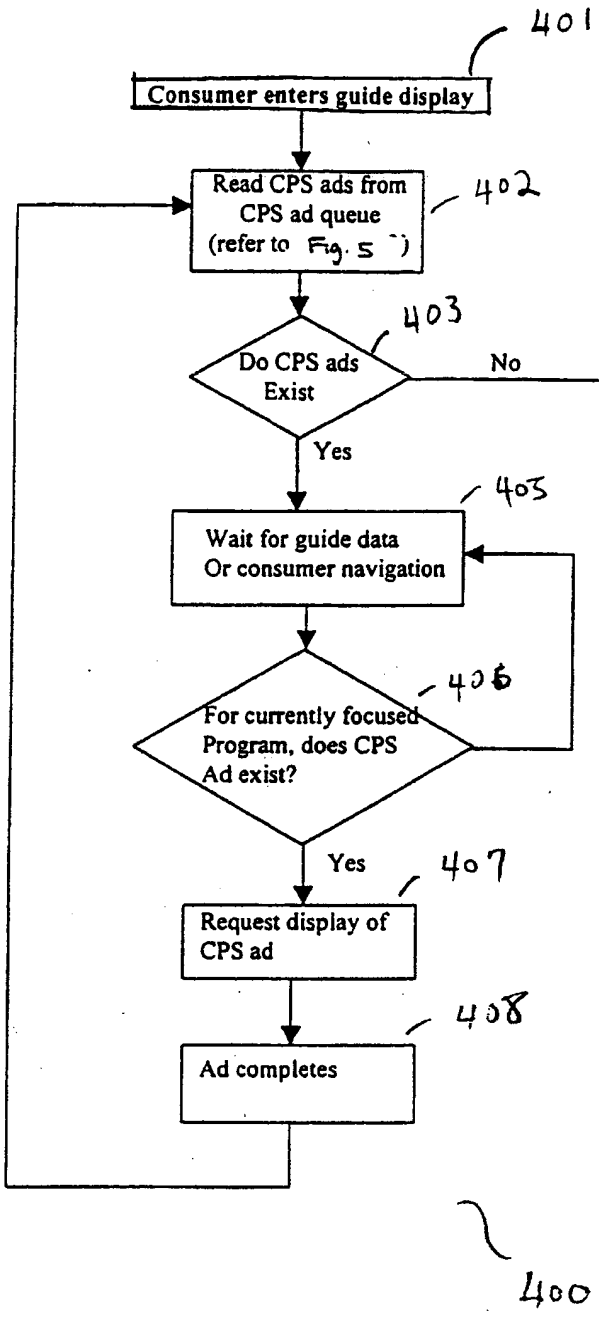
401
Consumer enters guide display
Read CPS ads from CPS ad queue (refer to Fig. 5)
402
Do CPS ads Exist
403
No
Process non-CPS ads
404
Yes
Wait for guide data Or consumer navigation
405
For currently focused Program, does CPS Ad exist?
406
Yes
Request display of CPS ad
407
Ad completes
408
400

Fig 4

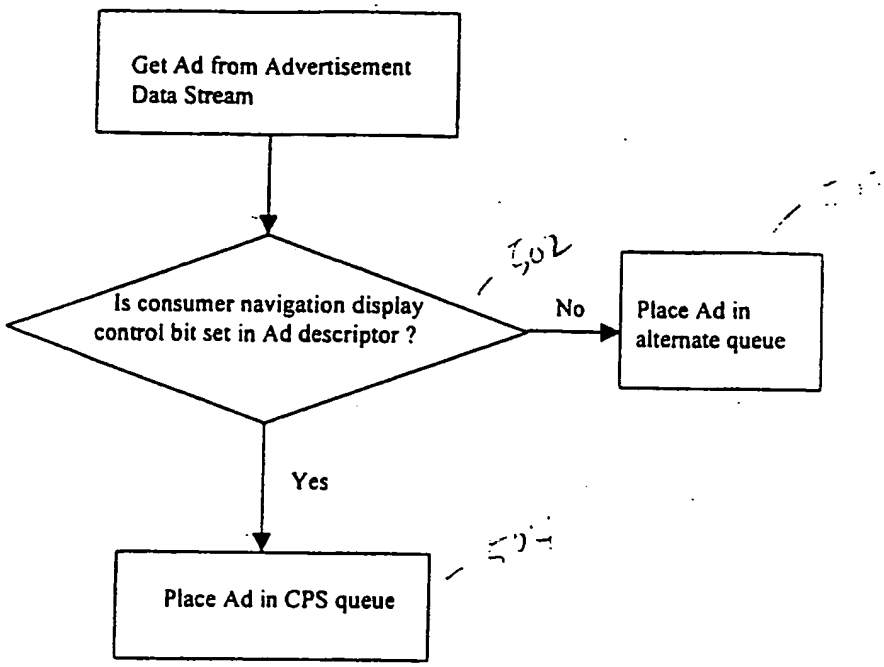
Get Ad from Advertisement Data Stream
Is consumer navigation display control bit set in Ad descriptor ?
No
Place Ad in alternate queue
Yes
Place Ad in CPS queue

Fig 5

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